SMART ASSET

Under the Guidance of

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Internet Of Things

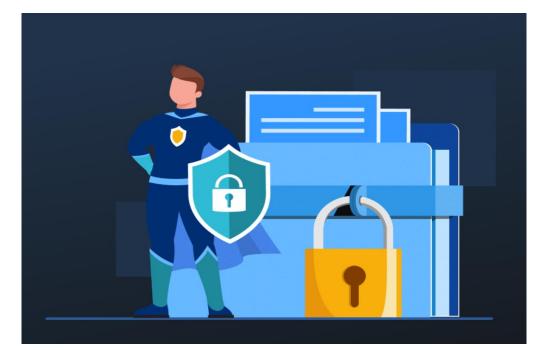
Agenda

- Why Smart Asset?
- Hardware Components
- Sequence Of Operation
- Code snippet
- Demo

Why Smart Asset?

Smart asset is used to monitor precious and valuable items. The items can be jewellery, money and valuable personal things etc. This system provides security alerts incase of unauthorized human presence and also provides the signals in case of opening the asset

storage box.



Features

- Human Presence detection
- Determines whether the asset lid is opened or closed.
- Tamper detection
- Mobile Interface
- API
- Sound alerts, RGB Bar indicator and RGB Bar indicator.

Components Used in this Project

Angle Sensor





Motion Sensor(PIR)





▶ RGB LED



► M5GO Stack core



ENV III sensor





Software:

Ui flow has been used to implement blockly logic.

Sequence Of Operation

Home Page of the Application



When the Button A is clicked, Utilities screen is displayed.



▶ When Button B is clicked, The QR code for mobile interface is displayed



When Button C is clicked, Output display page



Change in Angle detection

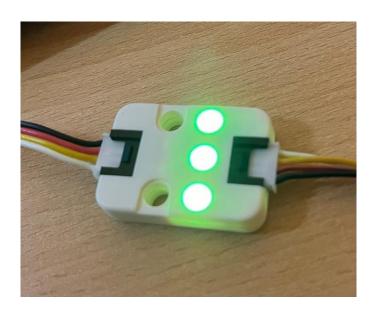
If the asset lid is opened, then the status will be displayed as "Opened" and RGB bar is displayed in red colour otherwise it is displayed as "closed" and RGB bar is displayed in green colour.

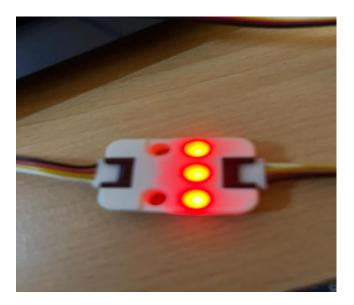




Human Presence detection

If the Human presence is detected then the status will be displayed as "detected" and red color appears in RGB LED otherwise the status will be displayed as "Not detected" and green color appears in RGB LED.





- If the tamper is identified, then the status will be displayed as "detected" and buzzer will be turned on otherwise the status will be displayed as not detected.
- ▶ The sensor data is stored in the Ezdata.
- The data stored in the EZ data Card is written on the SD Card.
- Mobile interface displays the utility data, sensor data and also contains a button to display user manual

Code Snippets

```
Setup

Title Homescreen * show * SMART ASSET **

Set Homescreen * backgroundColor **
```

Utility Page code

```
Sallon A wasPressed
 Set label0 hide
 Set label1 + hide +
 Set label3 * hide *
 Set label6 * hide *
 Set label7 hide
 Label label14 show
 Label label8 show
                             Connected
       lare label9 show
                            Not Connected
 Label label10 show Power:
 Label label11 show | get Battery Leve
 Label label12 show Temperature:
 Label label13 show Get env3_0 Temperature (°C) (return foat)
```

QR code

```
Remote groode show in x 1 72 y 1 32 size 1 176

Title Homescreen show SMART ASSET

Set Homescreen backgroundColor
```

Asset Lid detection code logic

```
set detected angle to Get angle 1 value
          detected_angle *  intial_angle *
     Set label0 • color Palette •
     Set label3 v color Palette v
     Label label0 = show Opened
     Set left side RGB Bar color
     Set right side RGB Bar color
     Set label0 + color Palette
     Set label3 color Palette
     Label label0 show Closed
     Set left side RGB Bar color
     Set right side RGB Bar color
```

Human presence code logic

```
set detected moments to Get pire status (return 0 or 1)

if intial movement detected moment detected moment detected moment detected moment detected moment detected moment detected detected moment detected dete
```

Tamper detection Code logic

Saving data to Ezdata and writing it to sd card

```
Save value Convert data to JSON (string) to topic (system ) with token (specific write data)

Wait 12000 5

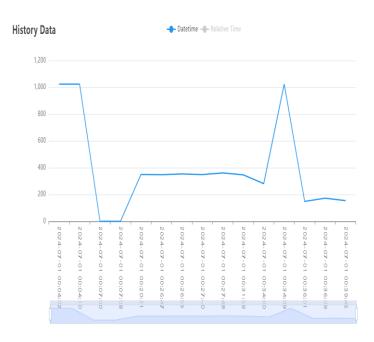
Open sdoard file (see Sensordata.bxt 2) mode (w+ )
```

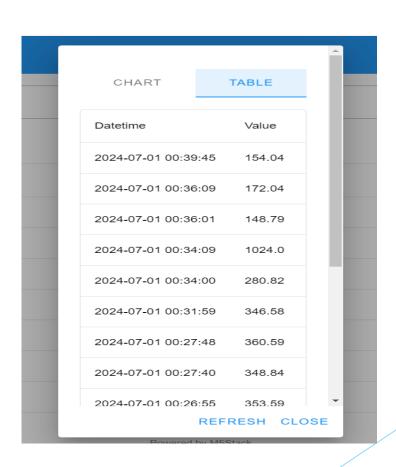
API

```
Button Click Callback
  Set Screen backgroundColor Palette
  Set (Homescreen backgroundColor
   Title (Homescreen show )
                                SMART ASSET
  Http Request
  Method GET ▼
                      https://66823e9e04acc3545a08bd11.mockapi.io/user...
                   create map
                   create map
            Label label15 show Get Data
             Label (label15 - show )
                                      Data is not fetched
```

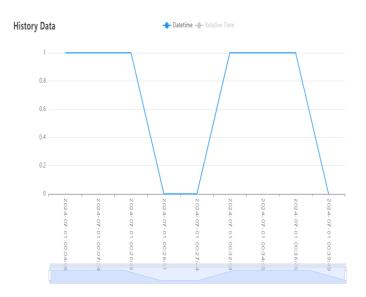
EZ Data

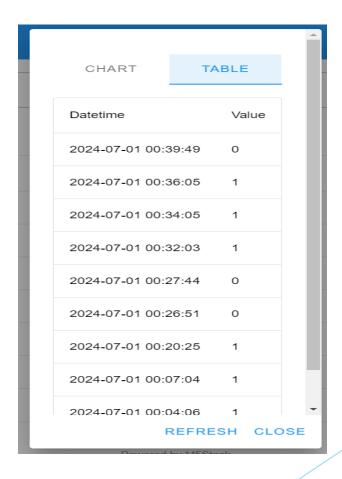
Angle Sensor



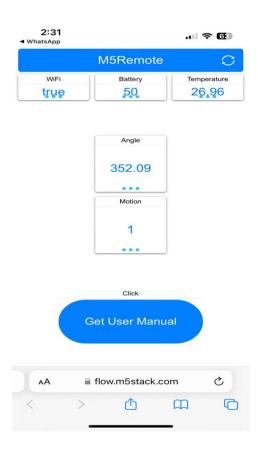


Motion Sensor





Mobile Interface



DEMO

References

- *PIR",m5stack,<u>https://docs.m5stack.com/en/unit/pir</u>,31 May 2024
- *ANGLE",m5stack,<u>https://docs.m5stack.com/en/unit/angle</u>,31 May 2024
- RGB,m5stack,https://docs.m5stack.com/en/unit/rgb, 31 May 2024
- "Uiflow",<u>m5stack,https://flow.m5stack.com/</u>, 31 May 2024
- V. Selvakumar, S. Sivanandan, V. Saillaja and A. Subbarayudu, "Smart Asset Management: Tracking and Optimizing Assets with IoT Sensors," 2023 2nd International Conference on Edge Computing and Applications (ICECAA), Namakkal, India, 2023, pp. 1354-1358, doi: 10.1109/ICECAA58104.2023.10212115.

THANK YOU

